

NOTES.

IN connection with the assembly of the International Association of Academies next week, the international council of the International Catalogue of Scientific Literature will also meet. The following are the members of this council, and the countries they represent:—Prof. H. E. Armstrong, F.R.S., Great Britain; Prof. H. Poincaré and Dr. J. Deniker, France; Dr. W. T. Blanford, F.R.S., India; Dr. M. Knudsen, Denmark; Prof. R. Nasini, Italy; Captain H. J. Lyons, R.E., Egypt; Prof. A. Famintzin, Russia; Prof. Dr. Karl von Than, Hungary; Dr. J. Brunchorst, Norway; Monsieur D. G. Mététas, Greece; Prof. Dr. D. J. Korteweg, Holland; and Prof. A. Liver-side, New South Wales.

THE Weights and Measures (Metric System) Bill was read a third time in the House of Lords on Tuesday, and was passed with various amendments proposed by the public departments to the Select Committee to which the Bill was referred.

SIR WILLIAM RAMSAY has just been elected an honorary member of the "Bunsen Gesellschaft."

PROF. G. H. DARWIN, F.R.S., has been elected a foreign associate of the U.S. National Academy of Sciences.

WE regret to see the announcement of the death of Prof. G. J. Allman, F.R.S., for more than forty years professor of mathematics in Queen's College, Galway.

THE council of the Geological Society of London has this year awarded the Daniel Pidgeon fund to Mr. Linsdall Richardson, of Cheltenham.

THE *Times* correspondent at St. John's, Newfoundland, states that Lieut. Peary is chartering the sealer *Eagle* for a cruise to Littleton Island, from July to September, in preparation for a four years' stay in the Arctic regions, beginning next season.

A MATHEMATICAL society of Vienna has been organised, the meetings of which are to be held monthly. The officers are Messrs. G. von Escherich (president), E. Müller and W. Wirtinger (vice-presidents), A. Lampa (secretary), and A. Gerstel (treasurer).

A FUND has been started by the Faculty of Sciences and the Engineering School of Rome with the object of raising some kind of memorial to the late Prof. Cremona. The secretary is Signor I. Sonzogno, 5 Piazza San-Pietro in Vincoli, Rome.

THE Royal Academy of Sciences of Madrid offers for 1905 a prize for the best essay written in Spanish or Latin on the following subject:—"A complete study of a special class of singular integrals arising from differential equations for which the values of the derived functions become indeterminate when certain relations exist between the simultaneous values of the principal variables."

FURTHER particulars have been recently issued regarding the mathematical congress which, as announced last summer in NATURE, is to take place at Heidelberg from August 8 to 13. There will be six sections, and in addition five conferences presided over by Profs. Wirtinger, Greenhill, Darboux, Segre and Königsberger. It is proposed to hold exhibitions of mathematical models and of mathematical books.

A SERIES of prizes is offered by the mathematical and natural science section of the "Jablonow" Society of

NO. 1803, VOL. 70]

Leipzig for themes connected with the following subjects:—For 1904, the chemical differentiation of rock magmas; for 1905, the causes of plasmic currents in vegetable cells; for 1906, the analogues of Bernouilli's numbers in the study of elliptic functions; and for 1907, the laws of photoelectric currents. Full particulars are obtainable from the secretary, Prof. Wilhelm Scheibner, 8 Schletterstrasse, Leipzig.

A BRIEF notice of the late Edmund Hess, who died at Heidelberg on December 24, 1903, is given in a note in *L'Enseignement mathématique*, vi., 2. Hess was born at Marburg on February 17, 1843, and studied mathematics there from 1860 to 1862. The next year he went to Heidelberg, where he studied under Hesse, from whom he acquired his taste for geometry. He subsequently occupied the post of assistant at the Observatory of Göttingen, and in 1866 returned to Marburg, where he held office at first as extraordinary and later as ordinary professor. His papers deal exclusively with geometry, the subjects including "theory of the division of the sphere" and "contributions to the theory of configurations in space."

THE ninth annual congress of the South-Eastern Union of Scientific Societies will be held at Maidstone on June 9-11. Mr. F. W. Rudler, the president-elect, will deliver an address on the evening of June 9, and papers will be read on the mornings of June 10 and June 11. There will be several excursions to places of interest to naturalists and archaeologists. The hon. general secretary is Mr. G. Abbot, 33 Upper Grosvenor Road, Tunbridge Wells.

ON Tuesday next, May 24, Mr. H. F. Newall will begin a course of two lectures at the Royal Institution on the solar corona; on Thursday, May 26, Mr. H. G. Wells will deliver the first of two lectures on literature and the State; and on Saturday, May 28, Sir Martin Conway will begin a course of two lectures on Spitsbergen in the seventeenth century. The Friday evening discourse on May 27 will be delivered by the Prince of Monaco on the progress of oceanography, and on June 3 by Prof. Svante Arrhenius on the development of the theory of electrolytic dissociation.

A CORRESPONDENT directs our attention to a singular mistake of dates in Mr. Herbert Spencer's "Autobiography." Referring to his visit to Montreal in 1882, Mr. Spencer states (vol. ii. p. 392):—"The meeting of the British Association had ended before our arrival." The meeting of the British Association in Montreal was in 1884, so this was probably a meeting of the American Association for the Advancement of Science which Spencer refers to. This conjecture appears to be confirmed on p. 384, where in a letter to Prof. Youmans he refers to the possibility of attending the meeting of the association at Montreal and supporting Prof. Youmans in his position of chairman of the Committee of Science Teaching.

DURING the anniversary meeting of the Royal Geographical Society on Monday, the Royal medals for the encouragement of geographical science and discovery were presented; the Founder's medal to Sir Harry H. Johnston, for his explorations and investigations in Africa, and the Patron's medal to Commander Robert F. Scott, R.N., for his conduct of the National Antarctic Expedition, and especially for his sledge journey to 82° 17' S. The following other awards were also made:—the Murchison grant for 1904 to Lieut. Colbeck, for his services to the society while in command of the relief expeditions; the Cuthbert Peek grant for 1904 to Don Juan Villalba, for important geographical dis-

coveries to the east of the Andes, while in command of a Peruvian exploring expedition; the Gill memorial for 1904 to Captain Irizar, Argentine Navy, for his very successful expedition for the rescue of the Nordenskjöld Antarctic Expedition; the Back grant for 1904 to Dr. M. A. Stein, for his valuable geographical work in Central Asia, and especially for his mapping in the Sarikol and Kwen-Lun ranges.

THE Russian papers report that a rather severe shock of earthquake occurred at Shemakha (Caucasus) on April 28 at 6.30 p.m.

A NEW expedition, under M. Tolmachoff, is being organised by the Russian Geographical Society for the exploration of the region between the mouths of the Yenisei and the Lena.

RECORDS obtained by observers in several parts of the world suggest that an appreciable general diminution of the transparency of the earth's atmosphere took place some time during the year 1902, but disappeared at some time during 1903. As this is an important matter and may possibly be made the basis of an explanation of other meteorological phenomena, Prof. Cleveland Abbe, U.S. Department of Agriculture (Weather Bureau), Washington, D.C., asks observers to send him any records that will assist in defining the dates of beginning and ending, and the extent of this change in transparency. Such records may consist of photometric or photographic observations of the brightness of the stars, changes in the solar or stellar spectra, unusual prevalence of halos, large Bishop's ring, or haze; observations of heat received from the sun, as made with actinometers or pyrheliometers; observations of the polarisation of the blue sky light and of scintillation of the stars. It is proposed to incorporate the results of the inquiry in a general article on the subject of atmospheric transparency.

WE have received notice from Dr. H. Hergesell, president of the International Committee for Scientific Balloon Ascents, that a new edition of the useful cloud atlas, prepared at the request of the International Meteorological Committee by MM. L. Teisserenc de Bort, H. Hildebrandsson and A. Riggensbach, and issued in Paris, under the special superintendence of the first named gentleman in 1896, will be undertaken if sufficient interest is taken in the matter by scientific men. We believe the atlas in question to be the best of the kind, and that the beautiful representations of various types of clouds have been of great use in connection with the scientific balloon and kite observations to which we have frequently directed attention. Dr. Hergesell (Strassburg) states that he will be glad to receive and to send to M. Teisserenc de Bort any suggestions from persons who have used the atlas, with the view of improving the proposed new edition.

THE report and results of observations for the year 1903, issued by Mr. J. Baxendell, meteorologist to the Southport Corporation, shows that the high-class work carried on at the Fernley Observatory has been fully maintained. The various experiments on anemometers have been continued, and several improvements in connection with self-registering apparatus have been effected. A new instrument for continuously recording the variations in the inclination of the wind was designed and constructed by Mr. Halliwell, chief assistant at the observatory, and is now at work at the anemograph station. A useful article on the meteorology of Southport was prepared during the year for the "British Association Handbook" of local information for the Southport meeting. The usual interesting comparison of statistics of various health resorts is appended to the report.

NO. 1803, VOL. 70]

At Leeds on May 12 Prof. Clifford Allbutt, F.R.S., opened a new public dispensary, the building of which has cost 33,000*l.* In the course of an address Prof. Allbutt remarked that medical men are engaged in destroying their own means of livelihood by preventing disease, and have attained very remarkable success. Diseases which were once rampant are now diminishing. Typhus has never been seen by some members of the medical profession. Typhoid fever has been reduced to a nominal amount, and there has been a reduction of pulmonary consumption all over England. Discoveries as to the nature of malaria have changed the face of important countries. Prof. Allbutt urged that preventing disease is more congenial than curing it, and suggested that a rise of the standard of general health would be achieved by the careful study of the origin and causes of disease in such an institution as that of the Leeds General Infirmary.

A COPY of the *Peterborough Advertiser* of May 7 has been sent to us, containing the announcement that radium has been found in beds of Oxford Clay near Fletton, Huntingdonshire. No particulars are given, but a long descriptive article on the discovery suggests that it will make "brickfields better than gold mines." These sanguine anticipations will perhaps be tempered by the following extract from a paper by Prof. J. J. Thomson, read before the Cambridge Philosophical Society on February 15:—"Radium was found in garden soil from the laboratory garden, in the Cambridge gault, in gravel from a pit at Chesterton, in still greater quantities in sand from the sea-shore at Whitby, in the blue lias at Whitby, in powdered glass, in one specimen of flour, and in a specimen of precipitated silica."

A NOTE in NATURE of May 5 (p. 12) refers to some results obtained by Prof. A. Stefanini and Dr. L. Magri concerning the action of radium on the electric spark. Mr. R. S. Willows writes from the Cass Institute, Jewry Street, E.C., to say that he has been making observations on this subject for some time, and has come to practically the same conclusions as those arrived at by the Italian physicists. He remarks:—"My experiments are not sufficiently advanced to justify me in stating completely my results, but since the action can be greatly hindered by a magnetic field, I have come to the conclusion that it arises from the β rays given off by the radium."

IN continuation of notes in previous numbers recording the progress of geographical research in Madagascar, the April issue of *La Géographie* contains an account of the geodetic and cartographical work carried out during 1902 and 1903. A sketch map showing the different triangulations and a table of determined positions accompany the article.

THE May number of the *Geographical Journal* contains short articles of varied interest ranging over many parts of the subject. The president summarises the second season's work of the *Discovery* in the Antarctic regions. Captain Philip Maud writes on the exploration of the southern borderland of Abyssinia; Lieutenant Irizar on the rescue of the Swedish Antarctic Expedition; Colonel G. E. Church on the Acre territory and the caoutchouc region of south-western Amazonia; and Mr. Claud Russell on a journey from Peking to Tsitsihar. Dr. Vaughan Cornish contributes an elaborate discussion of observations on the dimensions of deep-sea waves, and there are papers on a bathymetrical survey of the lakes of New Zealand by Mr. Keith Lucas, and on peat moors of the Pennines by Mr. C. E. Moss.

THE Geological Society of Belgium has issued a special memoir on the flow of underground waters in limestone regions. This is edited by M. E. Van den Broeck (Brussels, April). Having regard to the importance of determining the source of water used for drinking purposes, the underground course pursued by it, until it issues again in the form of springs, must if possible be ascertained. Observations on this subject are now brought forward and discussed. The use of colouring matters is generally regarded as the best means of determining the question, and especially with regard to the time occupied by the water in its transit through the strata. Fluorescein, which gives a green tint, has been held by a number of hydrologists to afford the most satisfactory results, while others have expressed the opinion that it serves to retard the flow of water, and that different matters in solution or in suspension have travelled more rapidly. It is, however, maintained that neither floating objects nor matters in suspension can give so true a notion of the flow as substances in solution, but the substance in solution must not augment the density. It is admitted that light, carbonic acid and peaty soil tend to decolorise the fluorescein. The influence of light is most important, and must be obviated. The decolorisation produced by carbonic acid can be counteracted by ammonia. It is generally concluded that fluorescein will prove the existence of communication between two points, and will give the best approximate idea of the time taken in transit. The fluoroscope is necessary to detect its presence.

A PHOTOGRAPHIC portrait of Francis Galton, admirable both in execution and as a likeness, is given in *Biometrika* (vol. ii. part iv.). The accompanying sketch of the same subject is also good and characteristic. The most important memoir in the part is Prof. Karl Pearson and Dr. Alice Lee's paper on the inheritance of physical characters. This embodies the fruit of many years' arduous labour, and establishes several results of high importance. Among these are the existence of statistical evidence of sexual selection, and the near approach to uniformity of the regression value of both physical and psychical characters as shown in fraternal inheritance. The former point receives indirect confirmation from a paper on assortative mating. Variation in *Ophiocoma nigra* is dealt with by Mr. D. C. McIntosh, and Mr. W. P. Ellerton contributes tables of powers and sums of powers of natural numbers up to 100. In the miscellanea, Prof. Pearson takes occasion to offer a vigorous defence of the position that "biometry is essentially a science of exact quantitative definition, and if it is to be of service in rendering anthropology an exact branch of science, it must replace vague ideas by numerically definite conceptions."

THE results of the important experiments on the crossing of Japanese waltzing and albino mice, reports of which have already appeared, are collected and fully discussed by Mr. Darbshire in *Biometrika*, vol. iii. part i. While certain of the crossings gave results in accordance with Mendel's law, Darbshire shows reason for the view that ancestral influence cannot be excluded, and that Mendel's theory of the purity of gametes receives no support from the present series of experiments. Referring to the variability of "heterozygotes" and their divergence in character from the parental standard, the author observes:—"It seems to me that we have not got any further in this direction than Darwin had when he called phenomena of this kind reversions to ancestral condition." Incidentally, he shows that the results of his crossings afford no instance of telegony. Among the other memoirs in this part is the record of a striking and valuable experiment by Mr. A. P.

di Cesnola on the protection from enemies secured by the coloration of *Mantis religiosa*. So far as the experiment went, the proof of protection enjoyed by the mantis in appropriate surroundings appeared to be complete, while it was also made clear that both green and brown forms are eaten by birds or ants when recognised. New ground is broken by Mr. Greenwood in a paper on the variability and correlation of the human viscera, and Prof. Weldon shows that Mendelian segregation does not, as has been suggested, obtain among human albinos in Sicily.

In the *Independent Review* for May, Dr. A. R. Wallace completes his survey of the chain of evidence connecting the "Islands of Wák-Wák" of the "Arabian Nights" with the Aru Islands, the home of the great bird-of-paradise. Hasan's journey through the "land of wild horses" is shown to refer to Tibet, whence the traveller crossed China to the sea, and eventually reached the Malay Peninsula. The apparently supernatural marvels encountered on the voyage from Malacca to the Aru Islands are all ingeniously demonstrated by Mr. Wallace to rest on a substratum of actual fact. Not that Hasan himself ever reached those islands, of which he was told by those who had accomplished the journey. Two separate legends appear to have been combined in the story of Hasan as we now know it. "The one is founded upon the magnificent plumage of the bird. . . . On the other hand, the cry 'wák-wák,' as distinctly stated by the General, gave the name to a mountain, and also to the islands themselves, and was said to be made, not by any bird, but by human heads which grew upon trees, and at daybreak gave forth this cry. . . . There is not a word in the whole story to show that there was thought to be any connection between the mysterious voices and the magical plumes."

WE have received from the publishers (Messrs. Cassell and Co., Ltd.) a copy of a new popular edition of that useful little work, "The Field Naturalist's Handbook," originally compiled by the late Rev. J. G. Wood, and revised by the Rev. T. Wood. As the new edition is published at the price of one shilling, it is within the reach of all, and everyone interested in field natural history should buy a copy. Perhaps it may be well to remind our readers that the work is restricted to three groups specially favoured by collectors, namely, butterflies and moths, wild plants, and birds eggs, and the proper seasons to look for the various kinds of each group are fully recorded in the tables. The scientific nomenclature, so far at least as Lepidoptera and birds are concerned, is of an old-fashioned type, but perhaps in the main it is none the worse for this, although some restriction of the scope of generic names would certainly have been advisable in the case of the ducks. In works of this nature it would perhaps be nowadays advisable to speak of "a scientific name" rather than "the scientific name" of a species. This little volume, which is an excellent example of careful editing, deserves a wide circulation.

A THIRD edition, which has been revised and enlarged, of Mr. W. Perren Maycock's "First Book of Electricity and Magnetism" has been published by Messrs. Whittaker and Co.

"THE Psychological Index, No. 10," a bibliography of the literature of psychology and cognate subjects for 1903, has been published in connection with the *Psychological Review*. The index has been compiled by Prof. Howard C. Warren, of Princeton University, with the cooperation of M. G. Revault D'Allonnes, of Paris; Mr. F. G. Bruner,

of Columbia University; and Mr. C. S. Myers, of the University of Cambridge.

MESSRS. PASTORELLI AND RAPKIN, LTD., have submitted to us for inspection specimens of their patent "dial" barograph and of their student's standard barometer. In the case of the barograph we notice that the action of both dial hand and recording arm is simultaneous, the same movement controlling the two. Should the pen not indicate upon the chart a reading coinciding with that shown by the dial hand, this can be rectified by means of a milled head at the side of the dial case. Another milled head moves pen and dial hand simultaneously, and thus makes it possible to set the instrument to agree with a standard barometer, or to adjust for altitude correction. The student's standard barometer is constructed on the Fortin principle, and provides an accurate instrument at a moderate cost.

THE new issue—that for 1904—of the "Statesman's Year-Book" (Macmillan, 10s. 6d. net), edited by Dr. Scott Keltie with the assistance of Mr. I. P. A. Renwick, contains several novel and valuable features. The introductory section of the volume includes statistical tables and diagrams exhibiting with admirable clearness the conditions of British trade and shipping from 1860 down to last year. A diagram is also included showing the distribution among the various fleets of the Belleville and other boilers. Panama, as an independent State, is accorded a separate section, as are also the See and Church of Rome, which in former issues have appeared together as a section under Italy. The statistics in other parts of the volume (which runs to 1398 pages) have been brought up to date by the aid of official returns. The annual publication of this compendium of the most trustworthy information available as to the various States of the world is a convenience to everyone interested in political geography and a necessity to all who have to make use of books of reference.

THE additions to the Zoological Society's Gardens during the past week include a Black-eared Marmoset (*Haپale penicillata*) from South-east Brazil, presented by the Hon. Mrs. Algernon Bourke; four Smith's Dwarf Lemurs (*Microcebus smithi*) from Madagascar, a Bosman's Potto (*Perodicticus potto*) from West Africa, presented by Mr. Percy H. Stormont; a Mona Monkey (*Cercopithecus mona*) from West Africa, presented by Mr. W. Hughes; a Common Raccoon (*Procyon lotor*) from North America, presented by Mr. P. Estcourt Holland; three Blood-breasted Pigeons (*Phlogaenas luzonica*) from the Philippine Islands, presented by Dr. L. Wynne Davies; a Vervet Monkey (*Cercopithecus lalandii*) from South Africa, presented by Mr. J. Smyth; two Lobed Chameleons (*Chamaeleon parvirostris*) from South Africa, presented by Mrs. Cox; a Tarantula Spider (*Avicularia avicularia*) from the Lower Amazons, presented by Mr. J. W. A. Watkins; an Antelope Kangaroo (*Macropus antilopinus*) from North Australia, a Yellow-handed Howler (*Mycetes beelzebul*) from the Lower Amazons, a Senegal Galago (*Galago senegalensis*) from Senegal, a Common Wolf (*Canis lupus*), two European Sousliks (*Spermophilus citellus*), European; a Dingo (*Canis dingo*) from Australia, two Grooved Tortoises (*Testudo calcarata*) from South Africa, deposited; two Spoonbills (*Platalea leucorodia*), two Cayman Island Amazons (*Chrysotis caymanensis*) from the Grand Cayman, purchased; a Corean Bull (*Bos taurus*, var.), three Crab-eating Raccoons (*Procyon lotor*), born in the Gardens.

NO. 1803, VOL. 70]

OUR ASTRONOMICAL COLUMN

JUNE METEORS.—June does not usually prove itself a very prolific month in furnishing meteors, and a sufficient reason is found in the strong twilight prevailing in high northern latitudes at this period. But there are a few very interesting showers to be observed. Very brilliant meteors are often directed from near Antares (α Scorpii), the radiant being at $252^{\circ} 21^{\circ}$. Nearly every year one or several fireballs from this southern stream appear over England, but the observations are often not sufficiently exact and numerous for their real paths to be determined.

There is an active radiant in June from $313^{\circ} 60^{\circ}$ near α Cephei. These meteors are swift, and they may quite possibly be connected with comet 1850 I., which has a radiant on June 23-24 in same position.

There is another shower in Cepheus from $335^{\circ} 57^{\circ}$ near ζ , which is particularly well defined at midsummer, and seems to be actively continued during July, August and September.

June is also a good month for Cygnids. There are fairly active showers from β , θ , δ and α Cygni. In June, 1887, a number of meteors were seen diverging from radiants at $252^{\circ} 11^{\circ}$ (near α Herculis), $274^{\circ} 69^{\circ}$ (ω Draconis), and $280^{\circ} 43^{\circ}$ (α Lyrae). It is probable that all these showers recur annually, though with variable strength.

A SPECTROHELIOGRAPH FOR THE CATANIA OBSERVATORY.—Prof. Orlando, the Italian Minister of Public Instruction, has granted L3000 (125l.) to the Observatory of Catania for the purchase of a spectroheliograph. The acquisition of such an instrument will enable Profs. Ricco and Tacchini to participate more fully in the proposed international daily study of the solar phenomena, and thereby add to the important solar work which has already been performed at the Observatory of Catania.

THE PARALLAX OF λ ANDROMEDÆ.—In a letter to the May issue of the *Observatory*, Mr. J. E. Gore directs the attention of those astronomers who are engaged in parallax determinations to the spectroscopic binary λ Andromedæ. From a consideration of the published elements it appears that the mass of the bright component of this system is only about one-tenth that of the sun. In order that a body with this mass and with a surface luminosity equal to that of the sun might appear as bright as λ Andromedæ (mag. = 4.0), it would have to be comparatively near to the earth. Mr. Gore's theoretical value of the parallax is $0^{\circ} 34$, and this is probably too low, for a comparison of their respective spectra leads to the conclusion that the surface luminosity of the sun is the greater. The star has a considerable proper motion, equal to 0.0157 in R.A. and $0^{\circ} 425$ in declination, according to the Greenwich ten year catalogue.

THE REPSOLD REGISTERING MICROMETER.—In No. 3943 of the *Astronomische Nachrichten*, Prof. K. Oertel discusses the results obtained with the Repsold self-registering micrometer which is attached to the meridian circle of the Munchen Observatory.

An analysis of these results leads Prof. Oertel to claim many advantages for this instrument as compared with the older form of micrometer. Among other advantages he mentions the following:—The personal equation is either entirely absent or extremely small. Differences of magnitude in the observed stars do not influence the results. The accuracy of the results is greater than in the older method. The observations take less time, one observer being able to observe between thirty and forty stars, in both co-ordinates, during one hour.

THE SPECTROSCOPIC BINARY β AURIGÆ.—In an article published in No. 3944 of the *Astronomische Nachrichten*, Prof. Vogel contests the validity of Herr Tikhoff's conclusions (*Astronomische Nachrichten*, No. 3916) concerning the system of the spectroscopic binary β Aurigæ, which stated that the system was probably made up of two separate pairs, and that the period was 3d. 23h. 30.4m. From the reduction of thirty-nine spectrograms obtained between December 22, 1903, and February 9, 1904, Prof. Vogel concludes that the period is 3d. 23h. 2m. 16s. \pm 5s., and that the orbit is nearly circular in form. He also states that the reason for believing the system to be made up of four bodies is, to him, obscure.